

### Sequence Listing

SEQ ID

1 rat OGFr cDNA  
5 2 rat OGFr protein  
3 rat OGFr cDNA partial (clone 14)  
4 human OGFr cDNA (Provisional)  
5 human OGFr splice version 8, cDNA  
6 human OGFr splice version 8, protein  
10 7 human OGFr splice version 1, cDNA  
8 human OGFr splice version 1, protein  
9 human OGFr splice version 4, cDNA  
10 human OGFr splice version 4, protein  
11 human OGFr splice version 7, cDNA  
15 12 human OGFr splice version 7, protein  
13 human OGFr splice version 127, cDNA  
14 human OGFr splice version 127, protein  
15 rat OGFr antisense 5'-GACTCAGGGACTTAGCTTCATCC-3'  
16 scrambled 5'-ATAGATACTACGCCGGCTGTCCT-3'  
20 17 human OGFr antisense 5'-GGTCGTCCATGCTCGGCTAGAAT-3'  
18 scrambled 5'-GTGCAGTGCAATGCTCTCCGTGA-3'

25

30

SEQ ID NO: 1 -- Rat Opioid Growth Factor Receptor cDNA sequence

5 TGGGCTCAGCCACGCCCCAGGGTGGCCCCAGTGGGACTAGTTCTTCTTCTGGCAGCTGCACACATCTGTCTAGTGAGGGAATGTCAGGTC 90  
TCTCACTCTCTCTCTCTCTCTATCCTTTCCGCAGAAAGCGGGTCCTCTGCTTGTCTGAGTATGGACGACCCGGACTGCGATTCCACCTGG 180  
GAGGAGGAGAGCGAGGAGGATGGCGAGGATGGCCAGGCGGATGATACGACCGATGAGGACACGGGCGACGATGACGGCGACGCGGAGGAG 270  
GCACGGCCAAGCCTGTTCCAGTCCAGGATGACAGGATACCGAAACTGGCGTGCTATGACGACATGCAAAGATACCGGCACAACCTACCCG 360  
GATTTGACAGATCAAGACTGCAATGGTGACATGTGCAACCTGAGCTTCTACAAAAATGAGATCTGCTTCCAGCCAAATGGGGCTCTCATC 450  
GAGGACATTCTTCAGAACTGGAAGACAATATGACCTCCTGGAAGAGAATCACTCTACATCCAGTGGCTGTTTCTCTGCGGGAACCA 540  
GGAGTGAAGTGGCAGCCAAAGCCCTCACCCTGAAGGAGTTGAGGCATTAAAAAGCTCCAAGGAAGTCAGAGAGCGTCTTGTCCGGGCC 630  
10 TATGAGCTCATGCTGGGCTTCTATGGGTTCCACCTTGAGGACCGGGGCACGGGTGCTGTATGCCGTGCACAGAAGTCCAGCCGCGCTTC 720  
CACAATCTGAACAGCCACAGCCAGCAACACCTGCGTATTACAGCATCTCAAGTCACTGGGTGAGCTGGGCTTAGAACACTACCAGGCA 810  
CCCCCTGGTCCGCTTCTCTCTGGAGGAGACCCTTGTACAGCACAACTGCCAGCGTGCAGCAGAGTGCCTTGGACTACTTCTGTTCGCT 900  
GTGCGCTGCCGGCACCAGCGCCGGAGCTTGTGTACTTTGCTTGGGAGCACTTCAAGCCTCGCCGAGAGTTTGTCTGGGGCCCCGTGAC 990  
AAGCTGCGGAGATTCAAGCCCCAGACATACCCAGCCACTGACGGGACCGGGCAGGCAGATAAAGATGAGGGCTCCAGGGACCCCTCC 1080  
15 CAAGAGGCTGGCACCAGGGTCCGACCTGTGGATCTGGAAGGGACCTGAGTGGGACAGTGAACAGCTGAGGATCCCTCACTGCTGAAC 1170  
ACAAAGCCCTCAGATGGGGGAACCTTGGATGGGAACAGAGGATGAAGCTAAGTCCCTGAGTCCCAAGGAGAGCAAGAAAAGGAAGTTG 1260  
GAGGGGAACAGGCAGGAGCAGGTCCAGGGAGGCAGATCCCAAGGTGTCTCTGAGGTAGAGAAAATTGCCCTTAACCTTGAGGAGTGT 1350  
GCCCTTAGCCCTATCAGCCAGGAGCCAGGGAGGCTGAACCGCCCTGTCTGTGGCCAGGGTGGCTAATGAGGTAAGAAAAGCGGAGGAAG 1440  
GTGGAGGAAGGGGCTGAGGGTGATGGAGTAGTCACTAAGTCAAGTGCAGGCCAGTGCCTGCCCTACCCCTTCAGAGTGTCTCTGAG 1530  
20 GCCCCAAAGGATGGGAATGGGCCAGAGGACTCAAAACAGCCAGGTTGGGGCAGAGGATTCCAAAAGCCAGGTGGGGCCGAGGATCCAAAC 1620  
AGCCAGGTGGGGCTGGAGGACCCAAACAGCCAGGTGGGGCAGAGACCCAAACAGCCAGGTGGGGCAGAGGACCCAAACAGCCAGGTC 1710  
GGGCCAGAGGACCCAAACAGCCAGGTGGGGCAGAGGACCCAAACAGCCAGGTGGGGCAGAGCAAGCTGCCTCTAAGAGCCCTGTG 1800  
GAGGACCCCTGACTCTGACACTATGGGAACCTCAGTGGATGAGTCAAGGAGTGGCAAGGATTGAGGCCTCTGCTGAACCCCAAGCCT 1890  
TAGAGGTGCATCTCAGTCTACTCAGCCCACTGAGGGGGTTTCTGAGTCCAGAGCTCTGCCGTAGGCTCTTCTTGGTGGCCACAGTGC 1980  
25 TGGCCTCTCCCTAGTGGTCACTGAGGTGGCCACAGAGGACTGAGGCCCTGCCCTCAGGGAAGGCCAAGGCCTTCAGAACCCTCCTTAC 2070  
CTCACTGTGCTCTCTCACTGCCCTCTGAGCCCTGCGTTGTGATCAGACCCTAAGGGTCTAGAGGGAGGGGCTCTTATTAGTCTGGT 2160  
GCCAAGTGAGGCCTTTTCTGAATAAACTCTTTAGACTTTGTCAA 2250

Initiator AUG at 151-153

Terminator TAG at 1891-1983

Open reading frame 151 (AUGGACGAC...) to 1890 (... AAGCCT)

SEQ ID NO:2 -- Rat Opioid Growth Factor Receptor

35 1 MDDPDCDSTW EESEEDGED GQADDTTDED TGDDDGDAEE ARPSLFQSRM  
51 TGYRNWRAMQ DMQRYRHNYP DLTDQDCNGD MCNLSFYKNE ICFQPNGALI  
101 EDILQNWKDN YDLLEENHSY IQWLFPLREP GVNWHAKPLT LKEVEAFKSS  
151 KEVRERLVRA YELMLGFYGF HLEDRTGAV CRAQNFQPRF HNLNSHSHNN  
40 201 LRITRILKSL GELGLEHYQA PLVRRFFLEET LVQHKLPSVR QSALDYFLFA

251 VRCRHORREL VYFAWEHFKP RREFVWGPRD KLRRFKPQTI PQPLTGPGQA  
 301 DKDEGSRDPS QEAGTQGRTC GSGRDLGSDS GTAEDPSLLN TKPSDGGTLD  
 351 GNQRDEAKSL SPKESKKRKL EGNRQEQVPG EADPQGVSEV EKIALNLEEC  
 401 ALSPISQEP R EAEP PC PVAR VANEVRKRRK VEEGAEGDGV VSNTQMQASA  
 451 LPPTPSECR E AQKDGN GPED SNSQVGAEDS KSQVGPEDPN SQVGLED PNS  
 501 QVGPEDPNSQ VGPEDPNSQV GPEDPNSQVG PEDPNSQVVG PEQAASKSPV  
 551 EDPDSDTMGT SVDESEELAR IEASAEPPKP

10 SEQ ID NO:3 -- Rat OGF $\alpha$ , partial cDNA sequence, clone 14

1 CATTGGGCCG ACGTCGCATG CTCCTCTAGA CTCGAGGAAT TCGGGCCCCA  
 51 GGGTGTCTCT GAGGTAGAGA AAATTGCCCT TAACCTTGAG GAGTGTGCCC  
 101 TTAGCCCTAT CAGCCAGGAG CCCAGGGAGG STGAACCGCC CTGTCTGTG  
 151 GCCAGGGTGG CTANAATGAG GTAAGAAANG CGGNAGGAAG GTGGAGGAAG  
 201 GGGCTGAGGG TGNATGGAGT AGTCAGTAAC ACTYAAATGN CAGGCCAGTG  
 251 CCCTGCCTCC TACCCCTTCA GAGTGTCTG AGGCCCAAAA GGATGGGAAT  
 301 GGGCCAGAGG ACTCAAACAG CCAGGTTGGG GCAGAGGATT CCAAAAGCCA  
 351 GGTGGGGCCG GAGGATCCAA ACAGCCAGGT GGGGCTGGAG GACCCAAACA  
 20 401 GCCAGGTCGG GCCAGAGGAC CCAAACAGCC AGGTCTGGGC AGAGGACCCA  
 451 AACAGCCAGG TCGGGCCAGA GGACCCAAAC AGCCAGGTCG GGCCAGAGGA  
 501 CCCAAACAGC CAGGTGGTGG GGCCAGAGCA AGCTGCCTCT AAGAGCCCTG  
 551 TGGANGGACC CTGACTCTGA CACTATGGGA ACCTCAGTGG ATGAGTCAGA  
 601 GGAGTTGGCA AGGATTGAGG CNTYTGCTGA ACCCCCAAAG CCTTAGAGGT  
 25 651 GCATTTTCAGT CCTACTCAGC CCACTGCAGG GGGTTTCTGA GTCCAGAGCT  
 701 CTGCCGTAGG CTCTTCTTGG TGCCCCACAG TGCTGGCCTC TCCCTASTGG  
 751 TCACTGAGGT GGCCACCAGA GGGACTGAGG CCCTGCCCTC AGGGAAGGCC  
 801 AAGGCCCTTCA GAACCTCCTT TACCTCACTG TGTCTCCTC CACTGCCCTC  
 851 TGAGCCCTGC GTTGTGATCA GACCCTAAGG GTCTAGAGGG AGGGGCCTCT  
 30 901 TCATTAGTCT GGTGCCAAGT GAGGCCTTTT CTGAATAAAC TCTTTAGACT  
 951 TTGTCAAAAA AAAAAAAAAA AAAAAAAAAA AAAAAA

SEQ ID NO:4 -- Human OGF receptor cDNA; spliced form A  
Length: 2290

1 TAGAATTCAG CGGCCGCTGA ATTCTAGCCG AGCATGGACG ACCCCGACTG  
5 51 CGACTCCACC TGGGAGGAGG ACGAGGAGGA TGCGGAGGAC GCGGAGGACG  
101 AGGACTGCGA GGACGGCGAG GCCGCCGGCG CGAGGGACGC GGACGCAGGG  
151 GACGAGGACG AGGAGTCGGA GGAGCCGCGG GCGGCGCGGC CCAGCTCGTT  
201 CCAGTCCAGA ATGACAGGGT CCAGAAACTG GCGAGCCACG AGGGACATGT  
251 GTAGGTATCG GCACAACATAT CCGGATCTGG TGGAACGAGA CTGCAATGGG  
10 301 GACACGCCAA ACCTGAGTTT CTACAGAAAT GAGATCCGCT TCCTGCCCAA  
351 CGGCTGTTTC ATTGAGGACA TTCTTCAGAA CTGGACGGAC AACTATGACC  
401 TCCTTGAGGA CAATCACTCC TACATCCAGT GGCTGTTTCC TCTGCGAGAA  
451 CCAGGAGTGA ACTGGCATGC CAAGCCCCCTC ACGCTCAGGG AGGTGAGGT  
501 GTTTAAAAAGC TCCCAGGAGA TCCAGGAGCG GCTTGTCCGG GCCTACGAGC  
15 551 TCATGCTGGG CTTCTACGGG ATCCGGCTGG AGGACCGAGG CACGGGCACG  
601 GTGGGCCGAG CACAGAACTA CCAGAAGCGC TTCCAGAACC TGAAGTGGCG  
651 CAGCCACAAC AACCTCCGCA TCACACGCAT CCTCAAGTCG CCGTGTGAGC  
701 TGAGCCTCGA GCACTTCCAG GCGCCACTGG TCCGCTTCTT CCTGGAGGAG  
751 ACGCTGGTGC GGCGGGAGCT GCCGGGGGTG CGGCAGAGTG CCCTGGACTA  
20 801 CTTCATGTTC GCCGTGCGCT GCCGACACCA GCGCCGCCAG CTGGTGCACT  
851 TCGCCTGGGA GCACTTCCGG CCCCCTGCA AGTTCGTCTG GGGGCCCCAA  
901 GACAAGCTGC GGAGTTCAA GCCCAGCTCT CTGCCCCATC CGCTCGAGGG  
951 CTCCAGGAAG GTGGAGGAGG AAGGAAGCCC CGGGGACCCC GACCACGAGG  
1001 CCAGCACCCA GGGTCGGACC TGTGGGCCAG AGCATAGCAA GGGTGGGGGC  
25 1051 AGGGTGGACG AGGGGCCCCA GCCACGGAGC GTGGAGCCCC AGGATGCGGG  
1101 ACCCCTGGAG AGGAGCCAGG GGGATGAGGC AGGGGGCCAC GGGGAAGATA  
1151 GGCCGGAGCC CTTAAGCCCC AAAGAGAGCA AGAAGAGGAA GCTGGAGCTG  
1201 AGCCGGCGGG AGCAGCCGCC CACAGAGCCA GGCCCTCAGA GTGCCTCAGA  
1251 GGTGGAGAAG ATCGCTCTGA ATTTGGAGGG GTGTGCCCTC AGCCAGGGCA  
30 1301 GCCTCAGGAC GGGGACCCAG GAAGTGGGCG GTCAGGACCC TGGGGAGGCA  
1351 GTGCAGCCCT GCCGCAACC CCTGGGAGCC AGGGTGGCCG ACAAGGTGAG  
1401 GAAGCGGAGG AAGGTGGATG AGGGTGCTCG GGACAGTGCT GCGGTGGCCA  
1451 GTGGTGGTGC CCAGACCTTG GCCCTTGCCG GGTCCCCTGC CCCATCGGGG  
1501 CACCCCAAGG CTGGACACAG TGAGAACGGG GTTGAGGAGG ACACAGAAGG  
35 1551 TCGAACGGGG CCCAAAGAAG GTACCCCTGG GAGCCCATCG GAGACCCAG

1601 GCCCCAGCCC AGCAGGACCT GCAGGGGACG AGCCAGCCGA GAGCCCATCG  
 1651 GAGACCCGAG GCCCCGCCC GGCAGGACCT GCAGGGGACG AGCCAGCCGA  
 1701 GAGCCCATCG GAGACCCGAG GCCCCAGCCC GGCAGGACCT ACAAGGGATG  
 1751 AGCCAGCCGA GAGCCCATCG GAGACCCGAG GCCCCGCCC GGCAGGACCT  
 5 1801 GCAGGGGACG AGCCAGCCGA GAGCCCATCG GAGACCCGAG GCCCCGCCC  
 1851 GGCAGGACCT GCAGGGGACG AGCCAGCCGA GAGCCCATCG GAGACCCGAG  
 1901 GCCCCAGCCC GGCAGGACCT ACAAGGGATG AGCCAGCCAA GGCGGGGGAG  
 1951 GCAGCAGAGT TGCAGKACGC AGAGGTGGAG TCTTCTGCCA AGTCTGGGAA  
 2001 GCCTTAAGGA AAGGAGTGCC CGTCGGCGTC TTGGTCCTCC TGTCCCTGCT  
 10 2051 GCAGGGGCTG GGCCTCCGG AGCTTGCTGC GGGCTCCCCT CAGGCTCTGC  
 2101 TTCGTGACCC GTGACCCATG ACCCAGAGTG CTGGCCTCCT GTGGGGCCAC  
 2151 TATAGCARSC ACCAGAAGCC GCGAGGCCCT CAGGGAAGCC CAAGGCCTGC  
 2201 AGAAGCCTCC TGGCTGGCT GTGTCTTCCC CACCCAGCTC TCCCCTGCGC  
 2251 CCCTGTCTTT GTAAATTGAC CCTTCTGGAG TGGGGGGCGG

Letter "S", "R", or "K" was used in positions where there was a 50-50  
 split on the consensus sequences. S = C or G; R = A or G; K = T or G.

Initiator AUG 34-36

Terminator TAA 2005-2007

20 Open reading frame: 34 (AUGGACGAC...) to 2004 (...GGGAAGCCT)

SEQ ID NO: 5 -- Human Opioid Growth Factor Receptor cDNA, spliced  
 version 8

1 TAGAATTCAG CGGCCGCTGA ATTCTAGCCG AGCATGGACG ACCCCGACTG  
 51 CCACTCCACC TGGGAGGAGG ACGAGGAGGA TGCGGAGGAC GCGGAGGACG  
 101 AGGACTGCGA GGACGGCGAG GCCGCCGGCG CGAGGGACGC GGACGCAGGG  
 151 GACGAGGACG AGGAGTCGGA GGAGCCGCGG GCGGCGCGGC CCAGCTCGTT  
 201 CCAGTCCAGA ATGACAGGGT CCAGAACTG GCGAGCCACG AGGGACATGT  
 251 GTAGGTATCG GCACAACTAT CCGGATCTGG TGGAACGAGA CTGCAATGGG  
 301 GACACGCCAA ACCTGAGTTT CTACAGAAAT GAGATCCGCT TCCTGCCCAA  
 351 CGGCTGTTTC ATTGAGGACA TTCTTCAGAA CTGGACGGAC AACTATGACC

401 TCCTTGAGGA CAATCACTCC TACATCCAGT GGCTGTTTCC TCTGCGAGAA  
 451 CCAGGAGTGA ACTGGCATGC CAAGCCCCTC ACGCTCAGGG AGGTCGAGGT  
 501 GTTTAAAAGC TCCCAGGAGA TCCAGGAGCG GCTTGTCCGG GCCTACGAGC  
 551 TCATGCTGGG CTTCTACGGG ATCCGGCTGG AGGACCGAGG CACGGGCACG  
 5 601 GTGGGCCGAG CACAGAACTA CCAGAAGCGC TTCCAGAACC TGAAGTGGCG  
 651 CAGCCACAAC AACCTCCGCA TCACACGCAT CCTCAAGTCG CCGTGTGAGC  
 701 TGAGCCTCGA GCACTTCCAG GCGCCACTGG TCCGCTTCTT CCTGGAGGAG  
 751 ACGCTGGTGC GGCGGGAGCT GCCGGGGGTG CGGCAGAGTG CCCTGGACTA  
 801 CTTTCATGTTT GCCGTGCGCT GCCGACACCA GCGCCGCCAG CTGGTGCCT  
 10 851 TCGCCTGGGA GCACTTCCGG CCCCCTGCA AGTTCGTCTG GGGGCCCCAA  
 901 GACAAGCTGC GGAGGTTCAA GCCCAGCTCT CTGCCGCATC CGCTCGAGGG  
 951 CTCCAGGAAG GTGGAGGAGG AAGGAAGCCC CGGGGACCCC GACCACGAGG  
 1001 CCAGCACCCA GGGTCGGACC TGTGAGCCAG AGCATAGCAA GGGTGGGGGC  
 1051 AGGGTGGACG AGGGGCCCCA GCCACGGAGC GTGGAGCCCC AGGATGCGGG  
 15 1101 ACCCCTGGAG AGGAGCCAGG GGGATGAGGC AGGGGGCCAC GGGGAAGATA  
 1151 GGCCGGAGCC CTTAAGCCCC AAAGAGAGCA AGAAGAGGAA GCTGGAGCTG  
 1201 AGCCGGCGGG AGCAGCCCCC CACAGGGCCA GGCCCTCAGA GTGCCTCAGA  
 1251 GGTGGAGAAG ATCGCTCTGA ATTTGGAGGG GTGTGCCCTC AGCCAGGGCA  
 1301 GCCTCAGGAC GGGGACCCAG GAAGTGGGCG GTCAGGACCC TGGGGAGGCA  
 20 1351 GTGCAGCCCT GCCGCCAACC CCTGGGAGCC AGGGTGGCCG ACAAGGTGAG  
 1401 GAAGCGGAGG AAGGTGGATG AGGGTACTGG GGACAGTGCT GCGGTGGCCA  
 1451 GTGGTGGTGC CCAGACCTTG GGCCTTGCCG GGTCCCCTGC CCCATCGGGG  
 1501 CACCCCAAGG CTGGACACAG TGAGAACGGG GTTGAGGAGG ACACAGAAGG  
 1551 TCGAACGGGG CCCAAAGAAG GTAACCCTGG GAGCCCATCG GAGACCCAG  
 25 1601 GCCCCAGCCC AGCAGGACCT GCAGGGGACG AGCCAGCCAA GACCCCATCG  
 1651 GAGACCCAG GCCCCAGCCC GGCAGGACCT ACAAGGGATG AGCCAGCCGA  
 1701 GAGCCCATCG GAGACCCAG GCCCCGCCC GGCAGGACCT GCAGGGGACG  
 1751 AGCCAGCCGA GAGCCCATCG GAGACCCAG GCCCCGCCC GGCAGGACCT  
 1801 GCAGGGGACG AGCCAGCCAA GATCCCATCG GAGACCCAG GCCCCAGCCC  
 30 1851 GGCAGGACCT ACAAGGGATG AGCCAGCCGA GAGCCCATCG GAGACCCAG  
 1901 GCCCCGCCC GGCAGGACCT GCAGGGGACG AGCCAGCCGA GAGCCCATCG  
 1951 GAGACCCAG GCCCCGCCC GGCAGGACCT GCAGGGGACG AGCCAGCCGA

2001 GAGCCCATCG GAGACCCAG GCCCAGCCC GGCAGGACCT ACAAGGGATG  
 2051 AGCCAGCCAA GCGGGGGGAG GCAGCAGAGT TGCAGGACGC AGAGGTGGAG  
 2101 TCTTCTGCCA AGTCTGGGAA GCCTTAAGGA AAGGAGTGCC CGTCGGCGTC  
 2151 TTGGTCCTCC TGTCCCTGCT GCAGGGGCTG GGGCCTCCGG AGCTGCTGCG  
 5 2201 GGCTCCCCCTC AGGCTCTGCT TCGTGACCCG TGACCCATGA CCCACAGTGC  
 2251 TGGCCTCCTG TGGGGCCACT ATAGCAGCCA CCAGAAGCCG CGAGGCCCTC  
 2301 AGGGAAGCCC AAGGCCTGCA GAAGCCTCCT GGCCTGGCTG TGTCTTCCCC  
 2351 ACCCAGCTCT CCCCTGCGCC CCTGTCTTTG TAAATTGACC CTTCTGGAGT  
 2401 GGGGGGCG

SEQ ID NO: 6 -- Human Opioid Growth Factor Receptor protein, from  
 spliced cDNA version 8

15 MDDPDCDSTWEEDEEDAEDAEDCEDGEAAGARDADAGDEDEESEEPRAARPSSFQSRM 60  
 TGSRNWRATRDMCRYRHNPDLVERDCNGDTPNLSFYRNEIRFLPNGCFIEDILQNWTDN 120  
 YDLLEDNHSYIQWLFPLREPGVNWHAKEPLTLREVEVFKSSQEIQLVRAVELMLGFYGI 180  
 RLEDRGTTGTVGRAQNYQKRFQNLNWRSHNNLRITRILKSPCELSLEHFQAPLVRFFLEET 240  
 LVRRELPGVRQSALDYFMFAVRCRHQRRLVHFWEHFRPRCKFVWGPQDKLRRFKPSSL 300  
 20 PHPLEGSRKVEEEGSPGDPDHEASTQGRTEPEHSGGGGRVDEGPQPRSVEPQDAGPLER 360  
 SQGDEAGGHGEDRPEPLSPKESKKRKLERSRREQPTGPGPQSASEVEKIALNLEGCALS 420  
 QGSLRTGTQEVGGQDPGEAVQPCRQPLGARVADKVRKRRKVDEGTGDSAAVASGGAQTLA 480  
 LAGSPAPSGHPKAGHSENGVEEDTEGRTGPKEGTPGSPSETPGPSPAGPAGDEPAKTPSE 540  
 TPGPSPAGPTRDEPAESPSETPGPRPAGPAGDEPAESPSETPGPRPAGPAGDEPAKIPSE 600  
 25 TPGPSPAGPTRDEPAESPSETPGPRPAGPAGDEPAESPSETPGPRPAGPAGDEPAESPSE 660  
 TPGPSPAGPTRDEPAKAGEAAELQDAEVESAKSGKP 697

SEQ ID NO: 7 -- Human OGFr cDNA, spliced version 1

1 TAGAATTCAG CGGCCGCTGA ATTCTAGCCG AGCATGGACG ACCCCGACTG  
 51 CGACTCCACC TGGGAGGAGG ACGAGGAGGA TCGGAGGAC GCGGAGGACG

101 AGGACTGCGA GGACGGCGAG GCCGCCGGCG CGAGGGACGC GGACGCAGGG  
 151 GACGAGGACG AGGAGTCGGA GGAGCCGCGG GCGGCGCGGC CCAGCTCGTT  
 201 CCAGTCCAGA ATGACAGGGT CCAGAAACTG GCGAGCCACG AGGGACATGT  
 251 GTAGGTATCG GCACAACATAT CCGGATCTGG TGGAACGAGA CTGCAATGGG  
 5 301 GACACGCCAA ACCTGAGTTT CTACAGAAAT GAGATCCGCT TCCTGCCCAA  
 351 CGGCTGTTTC ATTGAGGACA TTCTTCAGAA CTGGACGGAC AACTATGACC  
 401 TCCTTGAGGA CAATCACTCC TACATCCAGT GGCTGTTTCC TCTGCGAGAA  
 451 CCAGGAGTGA ACTGGCATGC CAAGCCCCTC ACGCTCAGGG AGGTCGAGGT  
 501 GTTTAAAAGC TCCAGGAGA TCCAGGAGCG GCTTGTCCGG GCCTACGAGC  
 10 551 TCATGCTGGG CTTCTACGGG ATCCGGCTGG AGGACCGAGG CACGGGCACG  
 601 GTGGGCCGAG CACAGAATA CCAGAAGCGC TTCCAGAACC TGAAGTGGCG  
 651 CAGCCACAAC AACCTCCGCA TCACACGCAT CCTCAAGTCG CCGTGTGAGC  
 701 TGAGCCTCGA GCACTTCCAG GCGCCACTGG TCCGCTTCTT CCTGGAGGAG  
 751 ACGCTGGTGC GGCGGGAGCT GCCGGGGGTG CGGCAGAGTG CCCTGGACTA  
 15 801 CTTTCATGTTT GCCGTGCGCT GCCGACACCA GCGCCGCCAG CTGGTGCCT  
 851 TCGCCTGGGA GCACTTCCGG CCCCCTGCA AGTTCGTCTG GGGGCCCAA  
 901 GACAAGCTGC GGAGGTTCAA GCCCAGCTCT CTGCCGCATC CGCTCGAGGG  
 951 CTCCAGGAAG GTGGAGGAGG AAGGAAGCCC CGGGGACCCC GACCACGAGG  
 1001 CCAGCACCCA GGGTCGGACC TGTGGGCCAG AGCATAGCAA GGGTGGGGGC  
 20 1051 AGGGTGGACG AGGGGCCCA GCCACGGAGC GTGGAGCCCC AGGATGCGGG  
 1101 ACCCCTGGAG AGGAGCCAGG GGGATGAGGC AGGGGGCCAC GGGGAAGATA  
 1151 GGCCGGAGCC CTTAAGCCCC AAAGAGAGCA AGAAGAGGAA GCTGGAGCTG  
 1201 AGCCGGCGGG AGCAGCCGCC CACAGAGCCA GGCCCTCAGA GTGCCTCAGA  
 1251 GGTGGAGAAG ATCGCTCTGA ATTTGGAGGG GTGTGCCCTC AGCCAGGGCA  
 25 1301 GCCTCAGGAC GGGGACCCAG GAAGTGGGCG GTCAGGACCC TGGGGAGGCC  
 1351 TCCTGTCCCT GCTGCAGGGG CTGGGGCCTC CGGAGCTGCT GCGGGCTCCC  
 1401 CTCAGGCTCT GCTTCGTGAC CCGTGACCCA TGACCCACAG TGCTGGCCTC  
 1451 CTGTGGGGCC ACTATAGCAG CCACCAGAAG CCGCGAGGCC CTCAGGGAAG  
 1501 CCCAAGGCCT GCAGGAGCCT CCTGGCCTGG CTGTGTCTTC CCCACCCAGC  
 30 1551 TCTCCCCTGC GCCCTGTCT TTGTAAATTG ACCCTTCTGG AGTGGGGGGC  
 1601 G



SEQ ID NO: 8 -- Human Opioid Growth Factor Receptor protein, from  
spliced cDNA version 1

5 MDDPDCDSTWEEDEEDAEDAEDDCEDGEEAAGARDADAGDEDEESEEPRARPSSSFQSRM 60  
TGSRNWRATRDMCRYRHNYPDIVERDCNGDTPNLSFYRNEIRFLPNGCFIEDILQNWTDN 120  
YDLLEDNHSYIQWLFPLREBGNVWHAKPLTLREVEVFKSSQEIQERLVRAYELMLGFYGI 180  
RLEDRGTTGTVGRAQNYQKRFDNLNWRSHNNLRITRILKSPCELSLEHFQAPLVRFFLEET 240  
LVRRELPGVRQSALDYFMFAVRCRHQRRLVHFAWEHFRPRCKFVWGPQDKLRRFKPSSL 300  
10 PHPLEGSRKVEEEGSPGDPDHEASTQGRTCGPEHSKGGGRVDEGPQPRSVEPQDAGPLER 360  
SQGDEAGGHGEDRPEPLSPKESKKRKLELSRREQPPTEPGPQSASEVEKIALNLEGCALS 420  
QGSRLRTGTQEVGGQDPGEASCPCCRGWGLRSCCGLPSGSAS 461

15 SEQ ID NO: 9 -- Human OGF cDNA, spliced version 4

1 TAGAATTCAG CGGCCGCTGA ATTCTAGCCG AGCATGGACG ACCCCGACTG  
51 CGACTCCACC TGGGAGGAGG ACGAGGAGGA TGGGAGGAC GCGGAGGACG  
101 AGGACTGCGA GGACGGCGAG GCCGCCGGCG CGAGGGACGC GGACGCAGGG  
20 151 GACGAGGACG AGGAGTCGGA GGAGCCGCGG GCGGCGCGGC CCAGCTCGTT  
201 CCAGTCCAGA ATGACAGGGT CCAGAACTG GCGAGCCACG AGGGACATGT  
251 GTAGGTATCG GCACAACTAT CCGGATCTGG TGGAACGAGA CTGCAATGGG  
301 GACACGCCAA ACCTGAGTTT CTACAGAAAT GAGATCCGCT TCCTGCCCAA  
351 CGGCTGTTTC ATTGAGGACA TTCTTCAGAA CTGGACGGAC AACTATGACC  
401 TCCTTGAGGA CAATCACTCC TACATCCAGT GGCTGTTTCC TCTGCGAGAA  
451 CCAGGAGTGA ACTGGCATGC CAAGCCCCTC ACGCTCAGGG AGGTCGAGGT  
501 GTTTAAAGC TCCCAGGAGA TCCAGGAGCG GCTTGTCCGG GCCTACGAGC  
551 TCATGCTGGG CTTCTACGGG ATCCGGCTGG AGGACCGAGG CACGGGCACG  
601 GTGGGCCGAG CACAGAACTA CCAGAAGCGC TTCCAGAACC TGAAGTGGCG  
30 651 CAGCCACAAC AACCTCCGCA TCACACGCAT CCTCAAGTCG CCGTGTGAGC  
701 TGAGCCTCGA GCACTTCCAG GCGCCACTGG TCCGCTTCTT CCTGGAGGAG  
751 ACGCTGGTGC GGCGGGAGCT GCCGGGGGTG CGGCAGAGTG CCCTGGACTA

801 CTTTCATGTTTC GCCGTGCGCT GCCGACACCA GCGCCGCCAG CTGGTGC ACT  
851 TCGCCTGGGA GCACTTCCGG CCCCCTGCA AGTTCGTCTG GGGGCCCCAA  
901 GACAAGCTGC GGAGGTCAA GCCAGCTCT CTGCCGCATC CGCTCGAGGG  
951 CTCCAGGAAG GTGGAGGAGG AAGGAAGCCC CGGGGACCCC GACCACGAGG  
5 1001 CCAGCACCCA GGGTCGGACC TGTGGGCCAG AGCATAGCAA GGGTGGGGGC  
1051 AGGGTGGACG AGGGGCCCCA GCCACGGAGC GTGGAGCCCC AGGATGCGGG  
1101 ACCCCTGGAG AGGAGCCAGG GGGATGAGGC AGGGGGCCAC GGGGAAGATA  
1151 GGCCGGAGCC CTTAAGCCCC AAAGAGAGCA AGAAGAGGAA GCTGGAGCTG  
1201 AGCCGGCGGG AGCAGCCGCC CACAGAGCCA GGCCCTCAGA GTGCCTCAGA  
10 1251 GGTGGAGAAG ATCGCTCTGA ATTTGGAGGG GTGTGCCCTC AGCCAGGGCA  
1301 GCCTCAGGAC GGGGACCCAG GAAGTGGGCG GTCAGGACCC TGGGGAGGCA  
1351 GTGCAGCCCT GCCGCCAACC CCTGGGAGCC AGGGTGGCCG ACAAGGTGAG  
1401 GAAGCGGAGG AAGGTGGATG AGGGTGCTGG GGACAGTGCT GCGGTGGCCA  
1451 GTGGTGGTGC CCAGACCTTG GCCCTTGCCG GGTCCCCTGC CCCATCGGGG  
15 1501 CACCCCAAGG CTGGACACAG TGAGAACGGG GTTGAGGAGG ACACAGAAGG  
1551 TCGAACGGGG CCCAAAGAAG GTACCCCTGG GAGCCCATCG GAGACCCCAG  
1601 GCCCCAGCCC AGCAGGACCT GCAGGGGACG AGCCAGCCGA GAGCCCATCG  
1651 GAGACCCCAG GCCCCCGCCC AGCAGGACCT GCAGGGGACG AGCCAGCCGA  
1701 GAGCCCATCG GAGACCCCAG GCCTCCGCCC GGCAGGACCT GCAGGGGACG  
20 1751 AGCCAGCCGA GACCCCATCG GAGACCCCAG GCCCCAGCCC GGCAGGACCT  
1801 ACAAGGGATG AGCCAGCCGA GAGCCCATCG GAGACCCCAG GCCCCGCCC  
1851 GGCAGGACCT GCAGGGGACG AGCCAGCCGA GAGCCCATCG GAGACCCCAG  
1901 GCCCCGCCC GGCAGGACCT GCAGGGGACG AACCAGCCGA GAGCCCATCG  
1951 GAGACCCCAG GCCCCAGCCC GGCAGGACCT ACAAGGGATG AGCCAGCCAA  
25 2001 GGCAGGGGAG GCAGCAGAGT GCAGGACGC AGAGGTGGAG TCTTCTGCCA  
2051 AGTCTGGGAA GCCTTAAGGA AAGGAGTGCC CGTCGGCGTC TTGGTCTCTC  
2101 TGTCCCTGCT GCAGGGGCTG GGGCCTCCGG AGCTGCTGCG GACTCCCCTC  
2151 AGGCTCTGCT TCGTGACCCG TGACCCATGA CCCACAGTGC TGGCCTCCTG  
2201 TGGGGCCACT ATAGCAGCCA CCAGAAGCCG CGAGGCCCTC AGGGAAGCCC  
30 2251 AAGGCCTGCA GAAGCCTCCT GGCCTGGCTG TGTCTTCCCC ACCCAGCTCT  
2301 CCCCTGCGCC CCTGTCTTTG TAAATTGACC CTTCTGGAGT GGGGGGCG

SEQ ID NO: 10 -- Human OGFr, from spliced cDNA version 4

MDDPDCDSTWEEDEEDAEDAEDDCEDGEAAGARDADAGDEDEESEEPRAARPSSFQSRM 60  
TGSRNWRATRD MCRYRHNY PDLVERDCNGDTPNLSFYRNEIRFLPNGCFIEDILQNWTDN 120  
5 YDILLEDNHSYIQWLFPLREPGVNVHAKPLTLREVEVFKSSQEIQLVRLVAYELMLGFYGI 180  
RLED RGTGT VGRAQNYQKRFQNLNWRSHNNLRITRILKSPCELSLEHFQAPLVRFFLEET 240  
LVRRELPGVRQSALDYFMFAVRCRHQRRLVHFAWEHFRPRCKFVWGPQDKLRRFKPSSL 300  
PHPLEGSRKVEEEGSPGDDHEASTQGRTCGPEHSGGGGRVDEGPQPRSVEPQDAGPLER 360  
SQGDEAGGHGEDRPEPLSPKESKKRKLRLSRREQPPTEPGPQSASEVEKIALNLEGCALS 420  
10 QGSLRTGTQEVGGQDPGEAVQPCRQPLGARVADKVRKRRKVDEGAGDSAAVASGGAQTLA 480  
LAGSPAPSGHPKAGHSENGVEEDTEGRTGPKEGTPGSPSETPGPSPAGPAGDEPAESPSE 540  
TPGPRPAGPAGDEPAESPSETPGLRPAGPAGDEPAETPSETPGPSPAGPTRDEPAESPSE 600  
TPGPRPAGPAGDEPAESPSETPGPRPAGPAGDEPAESPSETPGPSPAGPTRDEPAKAGEA 660  
AELQDAEVESSAKSGKP

SEQ ID NO: 11 -- Human OGFr cDNA, spliced version 7

1 TAGAATTCAG CGGCCGCTGA ATTCTAGCCG AGCATGGACG ACCCCGACTG  
20 51 C GACTCCACC TGGGAGGAGG ACGAGGAGGA TCGGAGGAC GCGGAGGACG  
101 AGGACTGCGA GGACGGCGAG GCCGCCGCGC CGAGGGACGC GGACGCAGGG  
151 GACGAGGACG AGGAGTCGGA GGAGCCGCGG GCGGCGCGGC CCAGCTCGTT  
201 CCAGTCCAGA ATGACAGGGT CCAGAACTG GCGAGCCACG AGGGACATGT  
251 GTAGGTATCG GCACAACTAT CCGGATCTGG TGAACGAGA CTGCAATGGG  
301 GACACGCCAA ACCTGAGTTT CTACAGAAAT GAGATCCGCT TCCTGCCCAA  
351 CGGCTGTTTC ATTGAGGACA TTCTTCAGAA CTGGACGGAC AACTATGACC  
401 TCCTTGAGGA CAATCACTCC TACATCCAGT GGCTGTTTCC TCTGCGAGAA  
451 CCAGGAGTGA ACTGGCATGC CAAGCCCCCTC ACGCTCAGGG AGGTGAGGT  
501 GTTTAAAGC TCCCAGGAGA TCCAGGAGCG GCTTGTCCGG GCCTACGAGC  
30 551 TCATGCTGGG CTTCTACGGG ATCCGGCTGG AGGACCGAGG CACGGGCACG  
601 GTGGGCCGAG CACAGAACTA CCAGAAGCGC TTCCAGAACC TGAAGTGGCG  
651 CAGCCACAAC AACCTCCGCA TCACAGCAT CCTCAAGTCG CCGTGTGAGC

701 TGAGCCTCGA GCACTTCCAG GCGCCACTGG TCCGCTTCTT CCTGGAGGAG  
751 ACGCTGGTGC GGC GGGAGCT GCCGGGGGTG CGGCAGAGTG CCCTGGACTA  
801 CTTTCATGTTC GCCGTGCGCT GCCGACACCA GCGCCGCCAG CTGGTGCACT  
851 TCGCCTGGGA GCACTTCCGG CCCCCTGCA AGTTCGTCTG GGGGCCCCAA  
5 901 GACAAGCTGC GGAGGTTCAA GCCCAGCTCT CTGCCCCATC CGCTCGAGGG  
951 CTCCAGGAAG GTGGAGGAGG AAGGAAGCCC CGGGGACCCC GACCACGAGG  
1001 CCAGCAGCCA GGGTCGGACC TGTGGGCCAG AGCATAGCAA GGGTGGGGGC  
1051 AGGGTGGACG AGGGGCCCCA GCCACGGAGC GTGGAGCCCC AGGATGCGGG  
1101 ACCCCTGGAG AGGAGCCAGG GGGATGAGGC AGGGGGCCAC GGGGAAGATA  
10 1151 GGCCGGAGCC CTTAAGCCCC AAAGAGAGCA AGAAGAGGAA GCTGGAGCTG  
1201 AGCCGGCGGG AGCAGCCGCC CACAGAGCCA GGCCCTCAGA GTGCCTCAGA  
1251 GGTGGAGAAG ATCGCTCTGA ATTTGGAGGG GTGTGCCCTC AGCCAGGGCA  
1301 GCCTCAGGAC GGGGACCCAG GAAGTGGGCG GTCAGGACCC TGGGGAGGCA  
1351 GTGCAGCCCT GCCGCCAACC CCTGGGAGCC AGGGTGGCCG ACAAGGTGAG  
15 1401 GAAGCGGAGG AAGGTGGATG AGGGTGCTGG GGACAGTGCT GCGGTGGCCA  
1451 GTGGTGGTGC CCAGACCTTG GCCCTTGCCG GGTCCCCTGC CCCATCGGGG  
1501 CACCCCAAGG CTGGACACAG TGAGAACGGG GTTGAGGAGG ACACAGAAGG  
1551 TCGAACGGGG CCCAAGAAG GTACCCCTGG GAGCCCATCG GAGACCCAG  
1601 GCCCCAGCCC AGCAGGACCT GCAGGGGACG AGCCAGCCGA GAGCCCATCG  
20 1651 GAGACCCAG GCCCCGCCG GGCAGGACCT GCAGGGGACG AGCCAGCCGA  
1701 GAGCCCATCG GAGACCCAG GCCCCAGCCC GGCAGGACCT ACAAGGGATG  
1751 AGCCAGCCGA GAGCCCATCG GAGACCCAG GCCCCGCCG GGCAGGACCT  
1801 GCAGGGGACG AGCCAGCCGA GAGCCCATCG GAGACCCAG GCCCCGCCG  
1851 GGCAGGACCT GCAGGGGACG AGCCAGCCGA GAGCCCATCG GAGACCCAG  
25 1901 GCCCCAGCCC GGCAGGACCT ACAAGGGATG AGCCAGCCAA GGC GGGGGAG  
1951 GCAGCAGAGT TGCAGGACGC AGAGGTGGAG TCTTCTGCCA AGTCTGGGAA  
2001 GCCTTAAGGA AAGGAGTGCC CGTCGGCGTC TTGGTCCTCC TGTCCCTGCT  
2051 GCAGGGGCTG GGGCCTCCGG AGCTGCTGCG GGCTCCCCTC AGGCTCTGCT  
2101 TCGTGACCCG TGACCCATGA CCCACAGTGC TGGCCTCCTG TGGGGCCACT  
30 2151 ATAGCAGCCA CCAGAAGCCG CGAGGCCCTC AGGGAAGCCC AAGGCCTGCA  
2201 GAAGCCTCCT GGCCTGGCTG TGTCTTCCCC ACCCAGCTCT CCCCTGCGCC  
2251 CCTGTCTTTG TAAATTGACC CTTCTGGAGT GGGGGGCG

SEQ ID NO: 12, Human OGFr, from spliced cDNA version 7

5 MDDPDCDSTWEEDEEDAEDAEDCEDGEAAGARDADAGDEDEESEEPRAARPSSFQSRM 60  
TGSRNWRATRDMCRYRHNPDLVERDCNGDTPNLSFYRNEIRFLPNGCFIEDILQNWTDN 120  
YDLEDNHSYIQWLFPLREPGVNWHAKEPLTLREVEVFKSSQEIQLRLVRAYELMLGFYGI 180  
RLEDRTGTGTGRAQNYQKRFQNLNWRSHNNLRITRILKSPCELSLEHFQAPLVRFFLEET 240  
LVRRELPGVRQSALDYFMFAVRCRHQRRLVHFAWEHFRPRCKFVWGPQDKLRRFKPSSL 300  
PHPLEGSRKVEEEGSPGDPDHEASTQGRTCGPEHSGGGGRVDEGPQPRSVEPQDAGPLER 360  
10 SQGDEAGGHGEDRPEPLSPKESKKRKLELSRREQPPTEPGPQSASEVEKIALNLEGCALS 420  
QGSRLRTGTQEVGGQDPGEAVQPCRQPLGARVADKVRKRRKVDGAGDSAAVASGGAQTLA 480  
LAGSPAPSGHPKAGHSENGVEEDTEGRTGPKEGTPGSPSETPGPSPAGPAGDEPAESPSE 540  
TPGPRPAGPAGDEPAESPSETPGPSPAGPTRDEPAESPSETPGPSPAGPAGDEPAESPSE 600  
TPGPRPAGPAGDEPAESPSETPGPSPAGPTRDEPAKAGEAAELQDAEVESSAKSGKP 657

SEQ ID NO: 13 -- Human OGFr cDNA, spliced version 127

20 1 TAGAATTCAG CGGCCGCTGA ATTCTAGCCG AGCATGGACG ACCCCGACTG  
51 CGACTCCACC TGGGAGGAGG ACGAGGAGGA TGCAGGAGGAC GCGGAGGACG  
101 AGGACTGCGA GGACGGGAGG GCCGCCGGCG CGAGGGACGC GGACGCAGGG  
151 GACGAGGACG AGGAGTCGGA GGAGCCGCGG GCGGCGCGGC CCAGCTCGTT  
201 CCAGTCCAGA ATGACAGGGT CCAGAACTG GCGAGCCACG AGGGACATGT  
251 GTAGGTATCG GCACAACTAT CCGGATCTGG TGGAACGAGA CTGCAATGGG  
25 301 GACACGCCAA ACCTGAGTTT CTACAGAAAT GAGATCCGCT TCCTGCCCAA  
351 CGGCTGTTTC ATTGAGGACA TTCTTCAGAA CTGGACGGAC AACTATGACC  
401 TCCTTGAGGA CAATCACTCC TACATCCAGT GGCTGTTTCC TCTGCGAGAA  
451 CCAGGAGTGA ACTGGCATGC CAAGCCCCCTC ACGCTCAGGG AGGTCGAGGT  
501 GTTTAAAAGC TCCCAGGAGA TCCAGGAGCG GCTTGTCGGG GCCTACGAGC  
30 551 TCATGCTGGG CTTCTACGGG ATCCGGCTGG AGGACCGAGG CACGGGCACG  
601 GTGGGCCGAG CACAGAACTA CCAGAAGCGC TTCCAGAACC TGAAGTGGCG  
651 CAGCCACAAC AACCTCCGCA TCACACGCAT CCTCAAGTCG CCGTGTGAGC

701 TGAGCCTCGA GCACTTCCAG GCGCCACTGG TCCGCTTCTT CCTGGAGGAG  
 751 ACGCTGGTGC GGCGGGGAGCT GCCGGGGGTG CGGCAGAGTG CCCTGGACTA  
 801 CTTTCATGTTT GCCGTGCGCT GCCGACACCA GCGCCGCCAG CTGGTGCACT  
 851 TCGCCTGGGA GCACTTCCGG CCCCCTGCA AGTTCGTCTG GGGGCCCCAA  
 5 901 GACAAGCTGC GGAGGTTCAA GCCAGCTCT CTGCCGCATC CGCTCGAGGG  
 951 CTCCAGGAAG GTGAGGAGG AAGGACCTGC AGGGGACGAG CCAGCCGAGA  
 1001 GCCCATCGGA GACCCAGGC CCCAGCCCGG CAGGACCTAC AAGGGATGAG  
 1051 CCAGCCAAGG CGGGGGAGGC AGAAGCCTGC TGCCTGGCTG TGTCTTCCCA  
 1101 CCCAGCTCTC CCCTGCGCCC CTGTCTTTGT TAATCGACCC TTCTGGAGCG  
 10 1151 GGGGGCGGCG GGCAGGGCTT GCCTTCTTA GTCTGATGCC AAGCAAGGCC  
 1201 TTTTCTGAAT AAATTCATTT GACTTTCGAA AA

SEQ ID NO: 14 -- Human OGFr, from spliced cDNA version 127

MDDPDCDSTWEEDEEDAEDAEDDCEDGEAAGARDADAGDEDEESEEPRAARPSSFQSRM 60  
 TGSRNWRATRDMCRYRHNPDLVERDCNGDTPNLSFYRNEIRFLPNGCFIEDILQNWTDN 120  
 YDLLEDNHSYIQWLFPLREPGVNWHAQPLTLREVEVFKSSQEIQLVRLVAYELMLGFYGI 180  
 RLEDRGTTGTGVAQNYQKRFQNLNWRSHNNLRITRILKSPCELSLEHFQAPLVRFFLEET 240  
 20 LVRRELPGVRQSALDYFMFAVRCRHQRRQLVHFAWEHFRPRCKFWGPDKLRRFKPSSL 300  
 PHPLEGSRKVEEFGPAGDEPAESPSETPGPSPAGPTRDEPAKAGEAEACCLAVSSHPLP 360  
 CAPVFNRPFWSGGRRAGLAFLSLMPSKAFSE 392